

FIG. 2A

Human G Protein Coupled Receptor Family
(Receptors known as of January, 1999)

CLASS	LIGAND	NUMBER	TISSUE	PHYSIOLOGY	THERAPEUTICS
Class I Rhodopsin like	•Amine				
	•Acetylcholine (muscarinic & nicotinic)	5	Brain, Nerves, Heart	Neurotransmitter	Acuity, Alzheimer's
	•Adrenoceptors				
	•Alpha Adrenoceptors	6	Brain, Kidney, Lung	Gluconeogenesis	Diabetes, Cardiovascular
	•Beta Adrenoceptors	3	Kidney, Heart	Muscle Contraction	Cardiovascular, Respiratory
	•Dopamine	5	Brain, Kidney, GI	Neurotransmitter	Cardiovascular, Parkinson's
	•Histamine	2	Vascular, Heart, Brain	Vascular Permeability	Anti-inflammatory, Ulcers
	•Serotonin (5-HT)	16	Most Tissues	Neurotransmitter	Depression, Insomnia, Analgesic
	•Peptide				
	•Angiotensin	2	Vascular, Liver, Kidney	Vasoconstriction	Cardiovascular, Endocrine
	•Bradykinin	1	Liver, Blood	Vasodilation,	Anti-inflammatory, Asthma
	•C5a anaphylatoxin	1	Blood	Immune System	Anti-inflammatory
	•Fmet-leu-phe	3	Blood	Chemoattractant	Anti-inflammatory
	•Interleukin-8	1	Blood	Chemoattractant	Anti-inflammatory
	•Chemokine	6	Blood	Chemoattractant	Anti-inflammatory
	•Orexin	2	Brain	Fat Metabolism	Obesity
	•Nociceptin	1	Brain	Bronchodilator, Pain	Airway Diseases, Anesthetic
	•CCK (Gastrin)	2	Gastrointestinal	Motility, Fat Absorption	Gastrointestinal, Obesity, Parkinson's
	•Endothelin	2	Heart, Bronchus, Brain	Muscle Contraction	Cardiovascular, Respiratory
	•Melanocortin	5	Kidney, Brain	Metabolic Regulation	Anti-inflammatory, Analgesics
	•Neuropeptide Y	5	Nerves, Intestine, Blood	Neurotransmitter	Behavior, Memory, Cardiovascular
	•Neurotensin	1	Brain,	CNS	Cardiovascular, Analgesic
	•Opioid	3	Brain,	CNS	Depression, Analgesic
	•Somatostatin	5	Brain, Gastrointestinal	Neurotransmitter	Oncology, Alzheimer's



FIG. 2B

•Tachykinin (Substance P, NKA ₁)	3	Brain Nerves	Neurohormone	Depression, Analgesic
•Thrombin	3	Platelets, Blood Vessels	Coagulation	Anti-coagulant / Anti-inflammatory
•Vasopressin-like	4	Arteries, Heart, Bladder	Water Balance	Anti-diuretic, Diabetic Complications
•Galanin	1	Brain, Pancreas	Neurotransmitter	Analgesics, Alzheimer's
•Hormone protein				
•Follicle stimulating hormone	1	Ovary, Testis	Endocrine	Infertility
•Lutropin-choriogonadotropic	1	Ovary, Testis	Endocrine	Infertility
•Thyrotropin	1	Thyroid	Endocrine	Thyroidism, Metabolism
•(Rhod)opsin				
•Opsin	5	Eye	Photoreception	Ophthalmic Diseases
•Olfactory	4 (~1000)	Nose	Smell	Olfactory Diseases
•Prostanoid				
•Prostaglandin	5	Arterial, Gastrointestinal	Vasodilation, Pain	Cardiovascular, Analgesic
•Lysophosphatidic Acid	2	Vessels, Heart, Lung	Inflammation	Cancer, Anti-inflammatory
•Sphingosine-1-phosphate	2	Most Cells	Cell proliferation	Cancer
•Leukotriene	1	White Blood Cells, Bronchus	Inflammation	Asthma, Rheumatoid Arthritis
•Prostacyclin	1	Arterial, Gastrointestinal	Platelet Regulation	Cardiovascular
•Thromboxane	1	Arterial, Bronchus	Vasoconstriction	Cardiovascular, Respiratory
•Nucleotide-like				
•Adenosine	4	Vascular, Bronchus	Multiple Effects	Cardiovascular, Respiratory
•Purinocceptors	4	Vascular, Platelets	Relaxes Muscle	Cardiovascular, Respiratory
•Cannabis	2	Brain	Sensory Perception	Analgesics, Memory
•Platelet activating factor	1	Most Peripheral Tissues	Inflammation	Anti-inflammatory, Anti-asthmatic
•Gonadotropin-releasing hormone like				
•Gonadotropin-releasing hormone	1	Reproductive Organs, Pituitary	Reproduction	Prostate Cancer, Endometriosis
•Thyrotropin-releasing hormone	1	Pituitary, Brain	Thyroid Regulation	Metabolic Regulation
•Growth hormone-inhibiting factor	1	Gastrointestinal	Neuroendocrine	Oncology, Alzheimer's
•Melatonin	1	Brain, Eye, Pituitary	Neuroendocrine	Regulation of Circadian Cycle

FIG. 2C

•Class II					
Secretin like					
•Secretin	1	Gastrointestinal, Heart	Digestion	Obesity, Gastrointestinal	
•Calcitonin	1	Bone, Brain	Calcium Resorption	Osteoporosis	
•Corticotropin releasing factor/urocortin	1	Adrenal, Vascular, Brain	Neuroendocrine	Stress, Mood, Obesity	
•Gastric inhibitory peptide (GIP)	1	Adrenals, Fat Cells	Sugar/Fat Metabolism	Diabetes, Obesity	
•Glucagon	1	Liver, Fat Cells, Heart	Gluconeogenesis	Cardiovascular	
•Glucagon-like Peptide 1 (GLP-1)	1	Pancreas, Stomach, Lung	Gluconeogenesis	Cardiovascular, Diabetes, Obesity	
•Growth hormone-releasing hormone	1	Brain	Neuroendocrine	Growth Regulation	
•Parathyroid hormone	1	Bone, Kidney	Calcium Regulation	Osteoporosis	
•PACAP	1	Brain, Pancreas, Adrenals	Metabolism	Metabolic Regulation	
•Vasoactive intestinal polypeptide (VIP)	1	Gastrointestinal	Motility	Gastrointestinal	
•Class III					
•Metabotropic Glutamate	7	Brain	Sensory Perception	Hearing, Vision	
•GABA _B	1	Brain	Neurotransmitter	Mood Disorders	
•Extracellular Calcium Sensing	1	Parathyroid, Kidney, GI Tract	Calcium Regulation	Cataracts, GI Tumors	

FIG. 3A

G protein-coupled receptors:

(Division into Class A

Or Class B)

1. **A1 adenosine receptor** [Homo sapiens]. **ACCESSION AAB25533**
NPIVYAF RIQKFRVTFLLKIWNDFHRCQ PAPPIDEDLP EERPDD
Class A
2. **adrenergic, alpha -1B-, receptor** [Homo sapiens]. **ACCESSION NP_000670**
npiiypc sskefkrafv rilgcqcrgr grmmrrr lggcaytyrp wtrggslers qsrkdsldds gscslgsqrt lpsaspspgy
lrggappve lcafpewkap gallspape ppgrgrhds gplftfklt epespgtdgg asnggceaaa dvangqpgfk
snmplapggf
Class A
3. **adrenergic receptor alpha-2A** [Homo sapiens]. **ACCESSION AAG00447**
npviytifn hdfirafkki lrgdrkriv
Class A
4. **alpha-2B-adrenergic receptor - human.** **ACCESSION A37223**
npviytifn qdfirafiri lcrpwtqtaw
Class A
5. **alpha-2C-adrenergic receptor - human.** **ACCESSION A31237**
npviytfvn qdfirpsfkhi lfrmrgrf q
Class A
6. **beta-1-adrenergic receptor** [Homo sapiens]. **ACCESSION NP_000675**
npiiycrs pdfirafqgl lccarraarr rhatgdrpr asgclarpgp ppspgaasdd ddddvvgatp parllepwag
cnggaaadsd ssldepcrpg faseskv
Class A
7. **beta-2 adrenergic receptor.** **ACCESSION P07550**
npliyrcsp dfirafqell clrrsslkay gngyssngnt 361 geqsgyhveq ekenklced lpgtedfvgh qgtvpsdnid
sqgrncstnd sll
Class A
8. **dopamine receptor D1** [Homo sapiens]. **ACCESSION NP_000785**
npii yafnadfrka fstllgcyr lcpatnaiet vsinnngaam fsshheprgs iskecnlyl iphavgssed lkkeeaagia
rpleklspal svldytdv slekiqpitq ngqhpt
Class A
9. **D(2) dopamine receptor.** **ACCESSION P14416**
npiiyttfn iefrkafiki lhc
Class A

FIG. 3B

10. **d3 dopamine receptor - human.** ACCESSION G01977
np viyttfnief rkafkils
Class A
11. **dopamine receptor D4 - human.** ACCESSION DYHUD4
npviyvtv fnaefrnvfr kalracc
Class A
12. **dopamine receptor D5 - human.** ACCESSION DYHUD5
npviya fnadfqqvfa qlgcsfhcs rtpvetvnis nelisynqdi vfhkeiaaay ihmmpnavtp gnrevdndee
egpfdrmfqi yqtspdgdpv aesvweldec geisldkitp fipngfh
Class A
13. **muscarinic acetylcholine receptor M1 [Homo sapiens].** ACCESSION NP_000729
nrmcyal cnkafrdfr lllcrwdkr rwrkipkrpg svhrtpsrgc
Class A
14. **muscarinic acetylcholine receptor M2 [Homo sapiens].** ACCESSION NP_000730
npacy alcnatfkkt fkhlimchyk nigatr
Class A
15. **muscarinic acetylcholine receptor M3 [Homo sapiens].** ACCESSION NP_000731
n pvcyalcnr frttfkmlll cqcdkkkrrk qqyqqrqsvi fhkrapeqal
Class A
16. **muscarinic acetylcholine receptor M4 [Homo sapiens].** ACCESSION NP_000732
npa cyalcnatfk ktrfhlllcq yrnigtar
Class A
17. **m5 muscarinic receptor. locus HUMACHRM** ACCESSION AAA51569
npicyalcnr tfrktfkmll lcrwkkkkve eklywqgnsk lp
Class A
18. **5-hydroxytryptamine (serotonin) receptor 1A [Homo sapiens].** ACCESSION BAA90449
npviy ayfnkdfqna fkkiikckf
Class A
19. **5-hydroxytryptamine (serotonin) receptor 1B [Homo sapiens].** ACCESSION BAA94455
npiiyt msnedfkqaf hklirfkcts
Class A
20. **5-hydroxytryptamine (serotonin) receptor 1E [Homo sapiens].** ACCESSION BAA94458
n pllytsfnd fklafkkir cre
Class A

FIG. 3C

21. **OLFACTORY RECEPTOR 6A1.** ACCESSION O95222
npiiyclmq evkralccil hlyqhqpdp kkgsmv
Class A
22. **OLFACTORY RECEPTOR 2C1.** ACCESSION O95371
npliy tlnmevkga lrrlgkgre vg
Class A
23. **angiotensin receptor 1 [Homo sapiens].** ACCESSION NP_033611
npl fyglgkfk ryflqlkyi ppkakshnl sfkmsfsyr psdnvssstk kpapefeve
Class B
24. **angiotensin receptor 2 [Homo sapiens].** ACCESSION NP_000677
npflycf vgnrfqqlr svfrvpitwl qgkresmscr kssslremet fvs
Class B
25. **interleukin 8 receptor beta (CXCR2) [Homo sapiens].** ACCESSION NM_001557
NPLIYAFIGQKFRHGLLKILAIHGLISKDSLKDSRPSFVGSSSGHTSTTL
Class B
26. **cx3c chemokine receptor 1 (cx3cr1) (fractalkine receptor)**
ACCESSION P49238
np liyafagekf rrylyhlygk clavlgrsv hvdfsssesq rsrhgsvlss nftyhtsdgd allll
Class B
27. **neurotensin receptor - human.** ACCESSION S29506
n pilynlvsan frhiflatla clcpvwmmr krpafsrkad svssnhfss natretly
Class B
28. **SUBSTANCE-P RECEPTOR (SPR) (NK-1 RECEPTOR) (NK-1R).** ACCESSION P25103
npiiyccldn rfrlgfkfahf rccpfisagd yeglemkstr yltqgsvyk vsrlettistvvgaheeepe dgpkatpssl
dltsncssrs dskmtesfs fssnvl
Class B
29. **vasopressin receptor type 2 [Homo sapiens].** ACCESSION AAD16444
npwiyasfss svsselsll ccargtrpps lgpqdescft assslakdts s
Class B
30. **thyrotropin-releasing hormone receptor - human.** ACCESSION JN0708
npviy nlmsqkfraa frklcnckqk ptekpanysv alnysvikes dhfstelddi tvtdfylsat kvsfddtela sevsfsqs
Class B

FIG. 3D

31. **oxytocin receptor - human. ACCESSION A55493**
 npwiym lftghlfhel vqrfccsas ylkgrlget saskksnsss fvlsrsss q rscsqpsta
Class B

32. **neuromedin U receptor [Homo sapiens]. ACCESSION AAG24793**
 npvlyslmssrfretfgealclgacchrlprhsshslsrmittgstlcvdvgslgswvhplagndgpeaqgetdps
Class B

33. **gastrin receptor. ACCESSION AAC37528**
 nplvy cfmhrrfqa cletcarcep rpprarpral pdedpptpsi aslsrlsytt lsfllpgg
Class B

34. **galanin receptor 3 [Homo sapiens]. ACCESSION 10879541**
 nplv yalasrhfra rfrlwpcgr rrrhrarral rrvrpassgp pgcpgdarps grllagggqg pepregpvhg geaargpe
Class A

35. **edg-1 - human. ACCESSION A35300**
 npiiy tltnkemrra firimscekc psgdsagkfk rpiiagmefs rsksdnsshp 361 qkdegdnpet imssgnvnss s
Class A

36. **central cannabinoid receptor [Homo sapiens]. ACCESSION NP_057167**
 npiiyalr skdlrhafsr mfpscegtaq pldnsmgdsd clkhannaa svhraesci kstvkiakvt msvstdtsae al
Class A

37. **delta opioid receptor - human. ACCESSION I38532**
 npvlyaf ldenfkrcfr qlcrkpcgrp dpssfsrpre atarervtac tpsdgpgggr aa
Class A

38. **proteinase activated receptor 2 (PAR-2) human. ACCESSION P55085**
 dpfvyvfvshdfrdhaknallcrsvrtvkqmqvsltskksrksssyssssttvktsy
Class A

39. **vasopressive intestinal peptide receptor (VIPR) rat. ACCESSION NM_012685**
 NGEVQAELRRKWRRWHLQGVLGWSSKSQHPWGGSN GATCSTQVSM LTRVSPSARR
 SSSFQA EVSLV
Class B

FIG. 4A

The mutated amino acid at the second position of the DRY motif is underlined.

VASOPRESSIN V2 RECEPTOR - (Human)
accession P30518

R137H

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1  MLMASTTSAV PGHPSLPSLP SNSSQERPLD TRDPLLARAE LALLSIVFVA VALSNGLVLA
61  ALARRGRRGH WAPIHVFIGH LCLADLAVAL FQVLPQLAWK ATDRFRGPDA LCRAVKYLQM
121 VGMYASSYMI LAMTLDHHRA ICRPMLAYRH GSGAHWNRPV LVAWAFSLLL SLPQLFIFAQ
181 RNVEGGSGVT DCWACFAEPW GRRTYVTWIA LMVFAVPTLG IAACQVLIFR EIHASLVPGP
241 SERPGGRRRG RRTGSPGEGA HVSAAVAKTV RMTLVIVVVY VLCWAPFFLV QLWAAWDPEA
301 PLEGAPFVLL MLLASLNSCT NPWIYASFSS SVSSELRSLC CCARGRTPPS LGPQDESCTT
361 ASSSLAKDTS S
(SEQ ID NO:40)

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ALPHA-1B ADRENERGIC RECEPTOR (ALPHA 1B-ADRENOCEPTOR).
(Golden hamster)
ACCESSION P18841

R143E

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1  MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAISVGL VLGAFILFAI
61  VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
121 WAAVDVLCCT ASILSLCAIS IDEYIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
241 VMKEMSNSKE LTLRIHKNF HEDTLSSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
301 GMFILCWLFP FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPIIYPC SSKEFKRAFM
361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS CMSGSQRTLTP
421 SASPSPGYLG RGAQPPELFC AYPEWKSGAL LSLPEPPGRR GRLD SGPLFT FKLLGEPESP
481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF
(SEQ ID NO:41)

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R143A

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1  MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAISVGL VLGAFILFAI
61  VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
121 WAAVDVLCCT ASILSLCAIS IDAYIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
241 VMKEMSNSKE LTLRIHKNF HEDTLSSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
301 GMFILCWLFP FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPIIYPC SSKEFKRAFM
361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS CMSGSQRTLTP
421 SASPSPGYLG RGAQPPELFC AYPEWKSGAL LSLPEPPGRR GRLD SGPLFT FKLLGEPESP
481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF
(SEQ ID NO:42)

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FIG. 4B

R143H

1 MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAI SVGL VLGAFILFAI
 61 VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
 121 WAAVDVLCCT ASILSLCAIS ID~~H~~YIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
 181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
 241 VMKEMSNSKE LTLRIHKNF HEDTLSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
 301 GMFILCWLPP FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPIIYPC SSKEFKRAFM
 361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS CMSGSQRTLP
 421 SASPSPGYLG RGAQPPELC AYPEWKSGAL LSLPEPPGRR GRLD SGPLFT FKLLGEPESP
 481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF

(SEQ ID NO:43)

R143N

1 MNPDLDTGHN TSAPAQWGEL KDANFTGPNQ TSSNSTLPQL DVTRAI SVGL VLGAFILFAI
 61 VGNILVILSV ACNRHLRTPT NYFIVNLAIA DLLLSFTVLP FSATLEVLGY WVLGRIFCDI
 121 WAAVDVLCCT ASILSLCAIS ID~~N~~YIGVRYS LQYPTLVTRR KAILALLSVW VLSTVISIGP
 181 LLGWKEPAPN DDKECGVTEE PFYALFSSLG SFYIPLAVIL VMYCRVYIVA KRTTKNLEAG
 241 VMKEMSNSKE LTLRIHKNF HEDTLSSTKA KGHNPRSSIA VKLFKFSREK KAAKTLGIVV
 301 GMFILCWLPP FIALPLGSLF STLKPPDAVF KVVFWLGYFN SCLNPIIYPC SSKEFKRAFM
 361 RILGCQCRSG RRRRRRRRLG ACAYTYRPWT RGGSLERSQS RKDSLDDSGS CMSGSQRTLP
 421 SASPSPGYLG RGAQPPELC AYPEWKSGAL LSLPEPPGRR GRLD SGPLFT FKLLGEPESP
 481 GTEGDASNGG CDATTDLANG QPGFKSNMPL APGHF

(SEQ ID NO:44)

FIG. 4C

Angiotensin II Receptor, Type 1 (AT1A) [Rattus norvegicus].
ACCESSION NP_112247

R126H

1 MALNSSAEDG IKRIQDDCPK AGRHSYIFVM IPTLYSIIFV VGIFGNSLVV IVIYFYMKLK
61 TVASVFLNL ALADLCFLT CPLWAVYTAM EYRWPFGNHL CKIASASVTF NLYASVFLT
121 CLSID^HYLAI VHPMKSRLRR TMLVAKVTCI IIWLMAGLAS LPAVIHRNVY FIENTNITVC
181 AFHYESRNST LPIGLGLTKN ILGFLFPFLI ILTSYTLIWK ALKKAYEIQK NKPRNDDIFR
241 IIMAIVLFFF FSWVPHQIFT FLDVLIQLGV IHDCKISDIV DTAMPITICI AYFNNCLNPL
301 FYGFLGKKFK KYFLQLLKYI PPKAKSHSSL STKMSTLSYR PSDNMSSSAK KPASCFEVE
(SEQ ID NO:45)

FIGS. 5A – 5B**A. Amino Acid sequence of the hGPR3- Enhanced Receptor**

MMWGAGSPLAWLSAGSGNVNVSSVGPAEGPTGPAAPLPSPKAWDVVLCISGTLVSCENA
LVVAIIIVGTPAFRAPMFLLVGSLAVADLLAGLGLVLHFHFAAVFCIGSAEMSLVLVGVLAM
AFTASIGSLLAITVDRLSLYNALTYSETTVTRTYVMLALVWGGALGLLLPVLAWNC
LDGLTTCGVVYPLSKNHLVLAIAFFMVFGIMLQLYAQICRIVCRHAQQIALQRHLLPA
SHYVATRKGIATLAVVLGAFAACWLPFTVYCLLGDAHSPPLYTYLTLLPATYNSMINPI
IYAFRNQDVQKVLWAVCCCCAAARGRTPPSLGPQDESCTTASSSLAKDTSS
(SEQ ID No: 46)

B. Nucleotide sequence of the hGPR3- Enhanced Receptor

ATGATGTGGGGTGCAGGCAGCCCTCTGGCCTGGCTCTCAGCTGGCTCAGGCAACGTGAA
TGTAAGCAGCGTGGGCCCAGCAGAGGGGGCCACAGGTCCAGCCGCACCACTGCCCTCGC
CTAAGGCCTGGGATGTGGTGCTCTGCATCTCAGGCACCCTGGTGTCTGCGAGAATGCG
CTAGTGGTGGCCATCATCGTGGGCACTCCTGCCTTCCGTGCCCCCATGTTCTCTGCTGGT
GGGCAGCCTGGCCGTGGCAGACCTGCTGGCAGGCCTGGGCCTGGTCTGCACTTTGCTG
CTGTCTTCTGCATCGGCTCAGCGGAGATGAGCCTGGTGCTGGTTGGCGTGCTGGCAATG
GCCTTTACYGCCAGCATCGGCAGTCTACTGGCCATCACTGTGCGACCGCTACCTTTCTCT
GTACAATGCCCTCACCTACTATTAGAGACAACAGTGACACGGACCTATGTGATGCTGG
CCTTAGTGTGGGGAGGTGCCCTGGGCCTGGGGCTGCTGCCTGTGCTGGCCTGGAAGTGC
CTGGATGGCCTGACCACATGTGGCGTGGTTTATCCACTCTCCAAGAACCATCTGGTAGT
TCTGGCCATTGCCTTCTTCATGGTGTTTGGCATCATGCTGCAGCTCTACGCCCAAATCT
GCCGCATCGTCTGCCGCCATGCCAGCAGATTGCCCTTCAGCGGCACCTGCTGCCTGCC
TCCCACTATGTGGCCACCCGCAAGGGCATTGCCCACTGGCCGTGGTGCTTGGAGCCTT
TGCCGCCTGCTGGTTGCCCTTCACTGTCTACTGCCTGCTGGGTGATGCCCACTCTCCAC
CTCTCTACACCTATCTTACCTTGCTCCCTGCCACCTACAACCTCCATGATCAACCCTATC
ATCTACGCCTTCCGCAACCAGGATGTGCAGAAAGTGCTGTGGGCTGTCTGCTGCTGCTG
TGCGGGCCGCACGGGGACGCACCCACCCAGCCTGGGTCCCCAAGATGAGTCCTGCACCA
CCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 47)

FIGS. 5C – 5D**C. Amino Acid sequence of the hGPR6- Enhanced Receptor**

MNASAASLND SQVVVVAE GAAAAATAAGGPD TGEWGPPAAAALGAGGGANGSLELSSQ
LSAGPPGLLLPAVNPWDVLLCVSGTVIAGENALVVALIASTPALRTPMFVLVGLATAD
LLAGCGLILHFVFQYLPSETVSLLTVGFLVASFAASVSSLLAITVD RYLSLYNALTYY
SRRTLLGVHLLLAATWTVSLGLGLLPVLGWNCLAERAACSVVRPLARSHVALLSAAFFM
VFGIMLHLYVRICQVVRHAHQIALQQHCLAPPHLAATRKG VGT LAVVLGTFGASWLPF
AIYCVVGSHEDPAVYTYATLLPATYNSMINPIIYAFRNQEIQRALWLLL CGCAAARGRT
PPSLGPQDESCTTASSSLAKDTSS

(SEQ ID No: 48)

D. Nucleotide sequence of the hGPR6- Enhanced Receptor

ATGAACGCGAGCGCCGCCTCGCTCAACGACTCCCAGGTGGTGGTAGTGGCGGCCGAAGG
AGCGGCGGCGGCGGCCACAGCAGCAGGGGGGCGGACACGGGCGAATGGGGACCCCCTG
CTGCGGCGGCTCTAGGAGCCGGCGGCGGAGCTAATGGGTCTCTGGAGCTGTCTCGCAG
CTGTGCGGCTGGGCCACCGGACTCCTGCTGCCAGCGGTGAATCCGTGGGACGTGCTCCT
GTGCGTGTGCGGGACAGTGATCGCTGGAGAAAACGCGCTGGTGGTGGCGCTCATCGCGT
CCACTCCGGCGCTGCGCACGCCCATGTTCTGTGCTGGTAGGCAGCCTGGCCACCGCTGAC
CTGTTGGCGGGCTGTGGCCTCATCTTGCACTTTGTGTTCCAGTACTTGGTGCCCTCGGA
GACTGTGAGTCTGCTCACGGTGGGCTTCCTCGTGGCCTCCTTCGCCGCTCTGTGTCAGCA
GCCTGCTGGCCATTACGGTGGACCGCTACCTGTCCCTGTATAACGCGCTCACCTATTAC
TCGCGCCGGACCCTGTTGGGCGTGACCTCCTGCTTGCCGCCACTTGGAACCGTGTCCCT
AGGCCTGGGGCTGCTGCCCGTGCTGGGCTGGAACTGCCTGGCAGAGCGCGCCGCTGCA
GCGTGGTGCGCCCGCTGGCGCGCAGCCACGTGGCTCTGCTCTCCGCCGCCTTCTTCATG
GTCTTCGGCATCATGCTGCACCTGTACGTGCGCATCTGCCAGGTGGTCTGGCGCCACGC
GCACCAGATCGCGCTGCAGCAGCACTGCCTGGCGCCACCCCATCTCGCTGCCACCAGAA
AGGGTGTGGGTACACTGGCTGTGGTGTGCTGGGCACTTTCGGCGCCAGCTGGCTGCCCTTC
GCCATCTATTGCGTGGTGGGCGAGCCATGAGGACCCGGCGGTCTACACTTACGCCACCCT
GCTGCCCGCCACCTACAACCTCCATGATCAATCCCATCATCTATGCCTTCCGCAACCAGG
AGATCCAGCGCGCCCTGTGGCTCCTGCTCTGTGGCTGTGCGGCCGCACGGGGACGCACC
CCACCCAGCCTGGGTCCCCAAGATGAGTCCTGCACCACCGCCAGCTCCTCCCTGGCCAA
GGAACTTCATCGTGA

(SEQ ID No: 49)

FIGS. 5E – 5F

E. Amino Acid sequence of the hGPR12- Enhanced Receptor

MNEDLKVNLSGLPRDYLDAAAENISAAVSSRVPAVEPEPELVVNPWDIVLCTSGTLIS
CENAIIVLII FHNPSLRAPMFLIGSLALADLLAGIGLITNFVFAYLLQSEATKLVITIG
LIVASFASVCSLLAITVDRYLSLYYALTYHSERTVTFTYVMLVMLWGTSICLGLLPVM
GWNCLRDESTCSVVRPLTKNNAAILSVSFLFMFALMLQLYIQICKIVMRHAHQIALQHH
FLATSHYVTTTRKGVSTLAIILGTFAACWMPFTLYSLIADYTYPSIYTYATLLPATYNSI
INPVIYAFRNQEIQKALCLICCGCAAARGRTPPSLGPQDESCTTASSSLAKDTSS
(SEQ ID No: 50)

F. Nucleotide sequence of the hGPR12- Enhanced Receptor

ATGAATGAAGACCTGAAGGTCAATTTAAGCGGGCTGCCTCGGGATTATTTAGATGCCGC
TGCTGCGGAGAACATCTCGGCTGCTGTCTCCTCCCGGGTTCCTGCCGTAGAGCCAGAGC
CTGAGCTCGTAGTCAACCCCTGGGACATTGTCTTGTGTACCTCGGGAACCCTCATCTCC
TGTGAAAATGCCATTGTGGTCTTATCATCTTCCACAACCCAGCCTGCGAGCACCCAT
GTTCTGCTAATAGGCAGCCTGGCTCTTGACAGACCTGCTGGCCGGCATTGGACTCATCA
CCAATTTTGTTTTTGCCTACCTGCTTCAGTCAGAAGCCACCAAGCTGGTCACGATCGGC
CTCATTGTGCGCTCTTTCTCTGCCTCTGTCTGCAGCTTGCTGGCTATCACTGTTGACCG
CTACCTCTCACTGTACTACGCTCTGACGTACCATTCCGAGAGGACGGTCACGTTTACCT
ATGTCATGCTCGTCATGCTCTGGGGGACCTCCATCTGCCTGGGGCTGCTGCCCGTCATG
GGCTGGAAGTGCCTCCGAGACGAGTCCACCTGCAGCGTGGTCAGACCGCTCACCAAGAA
CAACGCGGCCATCCTCTCGGTGTCCTTCTCTTCATGTTTGCGCTCATGCTTCAGCTCT
ACATCCAGATCTGTAAGATTGTGATGAGGCACGCCCATCAGATAGCCCTGCAGCACCAC
TTCCTGGCCACGTCGCACTATGTGACCACCCGAAAGGGTCTCCACCCTGGCTATCAT
CCTGGGGACGTTTGCTGCTTGCTGGATGCCTTTCACCCTCTATTCTTGATAGCGGATT
ACACCTACCCCTCCATCTATACCTACGCCACCCTCCTGCCC GCCACCTACAATTCCATC
ATCAACCCTGTCATATATGCTTTCAGAAACCAAGAGATCCAGAAAGCGCTCTGTCTCAT
TTGCTGCGGCTGCGCGGCCGCACGGGGACGCACCCACCCAGCCTGGGTCCCCAAGATG
AGTCCTGCACCACCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 51)

FIGS. 5G – 5H**G. Amino Acid sequence of the hSREB3- Enhanced Receptor**

MANTTGEPEEVSGALSPPSASAYVKLVLLGLIMCVSLAGNAILSLVLKERALHKAPYY
FLLDLCLADGIRSAVCFPFVLASVRHGSSWTF SALSKIVAFMAVLFCFHAAFMLFCIS
VTRYMAIAHHRFYAKRMTLWTCAAVICMAWTL SVAMAFPPVFDVGT YKFIREEDQCIFE
HRYFKANDTLGFMLMLAVLMAATHAVYGKLLLF EYRHRKMKPVQMPAISONWTFHGP
ATGQAAANWIAGFGRGPMPTLLGIRONGHAASRRL LGMDEVKGEKQLGRMFYAITLLF
LLLWSPYIVACYWRVFKACAVPHRYLATAVWMSFAQA AVNP IVCFLLNKDLKKCLRTH
APCAAARGRTPPSLGPQDESCTTASSSLAKDTSS
(SEQ ID No: 52)

H. Nucleotide sequence of the hSREB3- Enhanced Receptor

ATGGCCAACACTACCGGAGAGCCTGAGGAGGTGAGCGGCGCTCTGTCCCCACCGTCCGC
ATCAGCTTATGTGAAGCTGGTACTGCTGGGACTGATTATGTGCGTGAGCCTGGCGGGTA
ACGCCATCTTGTCCCTGCTGGTGCTCAAGGAGCGTGCCCTGCACAAGGCTCCTTACTAC
TTCCTGCTGGACCTGTGCCTGGCCGATGGCATA CGCTCTGCCGTCTGCTTCCCCTTTGT
GCTGGCTTCTGTGCGCCACGGCTCTTCATGGACCTTCAGTGCACTCAGCTGCAAGATTG
TGGCCTTTATGGCCGTGCTCTTTTGCTTCCATGCGGCCTTCATGCTGTTCTGCATCAGC
GTCACCCGCTACATGGCCATCGCCACCAACCGCTTCTACGCCAAGCGCATGACACTCTG
GACATGCGCGGCTGTCTATCTGCATGGCCTGGACCCTGTCTGTGGCCATGGCCTTCCCAC
CTGTCTTTGACGTGGGCACCTACAAGTTTATTTCGGGAGGAGGACCAAGTGATCTTTGAG
CATCGCTACTTCAAGGCCAATGACACGCTGGGCTTCATGCTTATGTTGGCTGTGCTCAT
GGCAGCTACCCATGCTGTCTACGGCAAGCTGCTCCTCTTCGAGTATCGTCACCGCAAGA
TGAAGCCAGTGACAGATGGTGCCAGCCATCAGCCAGAACTGGACATTCCATGGTCCCGGG
GCCACCGGCCAGGCTGCTGCCAACTGGATCGCCGGCTTTGGCCGTGGGCCCATGCCACC
AACCCTGCTGGGTATCCGGCAGAAATGGGCATGCAGCCAGCCGGCGGCTACTGGGCATGG
ACGAGGTCAAGGGTGAAAAGCAGCTGGGCGCATGTTCTACGCGATCACACTGCTCTTT
CTGCTCCTCTGGTCACCCTACATCGTGGCCTGCTACTGGCGAGTGTGTTGTGAAAGCCTG
TGCTGTGCCCCACCGCTACCTGGCCACTGCTGTTTGATGAGCTTCGCCAGGCTGCCG
TCAACCCAATTGTCTGCTTCTGCTCAACAAGGACCTCAAGAAGTGCTGAGGACTCAC
GCCCCCTGCGCGGCCGCACGGGGACGCACCCACCCAGCCTGGGTCCCCAAGATGAGTC
CTGCACCACCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 53)

FIGS. 5I – 5J

I. Amino Acid sequence of the hSREB2- Enhanced Receptor

MANYSHAADNILQNLSP LTAFLKLTSLGFIIGVSVVGNLLISILLVKDKTLHRAPYYFL
LDLCCSDILRSAICFPFVNSVKNGSTWYGTTLTKVIAFLGVLSCFHTAFMLFCISVT
RYLAIAHHRFYTKRLTFWTCLAVICMVWTLVAMAFPPVLDVGTYSFIREEDQCTFQHR
SFRANDSLGFMLLLALILLATQLVYLKLIFFVHDRRKMKPVQFVAAVSQNWTFHGPAS
GQAAANWLAGFGRGPTPPTLLGIRQNANTTGRRRLVLDEFKMEKRISRMFYIMTFLFL
TLWGPYLVACYWRVFARGPVVPGGFLTAAVWMSFAQAGINPFVCIFSNRELRRCFSTTL
LYCAAARGRTPPSLGPQDESCTTASSSLAKDTSS
(SEQ ID No: 54)

J. Nucleotide sequence of the hSREB2- Enhanced Receptor

ATGGCGAACTATAGCCATGCAGCTGACAACATTTTGCAAAATCTCTCGCCTCTAACAGC
CTTTCTGAAACTGACTTCCTTGGGTTTCATAATAGGAGTCAGCGTGGTGGGCAACCTCC
TGATCTCCATTTTGCTAGTGAAAGATAAGACCTTG CATAGAGCACCTTACTACTTCCTG
TTGGATCTTTGCTGTT CAGATATCCTCAGATCTGCAATTTGTTTCCCATTTGTGTTCAA
CTCTGTCAAAAATGGCTCTACCTGGACTTATGGGACTCTGACTTGCAAAGTGATTGCCT
TTCTGGGGGTTTGTCTGTTCCACACTGCTTTCATGCTCTTCTGCATCAGTGTCAAC
AGATACTTAGCTATCGCCCATCACCGCTTCTATACAAAGAGGCTGACCTTTTGGACGTG
TCTGGCTGTGATCTGTATGGTGTGGACTCTGTCTGTGGCCATGGCATTTCCTCCCGGTTT
TAGACGTGGGCACTTACTCATT CATTAGGGAGGAAGATCAATGCACCTTCCAACACCGC
TCCTTCAGGGCTAATGATTCCTTAGGATTTATGCTGCTTCTTGCTCTCATCCTCCTAGC
CACACAGCTTGTCTACCTCAAGCTGATATTTTCGTCCACGATCGAAGAAAAATGAAGC
CAGTCCAGTTTGTAGCAGCAGTCAGCCAGA ACTGGACTTTTCATGGTCCTGGAGCCAGT
GGCCAGGCAGCTGCCAATTGGCTAGCAGGATTTGGAAGGGGTCCCACACCACCCACCTT
GCTGGGCATCAGGCAAAATGCAAAACACCACAGGCAGAAGAAGGCTATTGGTCTTAGACG
AGTTCAAAATGGAGAAAAGAATCAGCAGAATGTTCTATATAATGACTTTTCTGTTTCTA
ACCTTGTGGGGCCCTACCTGGTGGCCTGTTATTGGAGAGTTTTTGCAAGAGGGCCTGT
AGTACCAGGGGGATTTCTAACAGCTGCTGTCTGGATGAGTTTTGCCCAAGCAGGAATCA
ATCCTTTTGTCTGCATTTTCTCAAACAGGGAGCTGAGGCGCTGTTTCAGCACAACCCTT
CTTTACTGCGCGGCCGCACGGGGACGCACCCACCCAGCCTGGGTCCCCAAGATGAGTC
CTGCACCACCGCCAGCTCCTCCCTGGCCAAGGACACTTCATCGTGA
(SEQ ID No: 55)

FIGS. 5K – 5L**K. Amino Acid sequence of the hGPR8- Enhanced Receptor**

MQAAGHPEPLDSRGSFSLPTMGANVSQDNGTGHNATFSEPLPFLYVLLPAVYSGICAVG
LTGNTAVIILVILRAPKMKTVTNVFILNLAVADGLFTLVLPVNIAEHLLOYPFGELLCK
LVLAVDHYNIFSSIIYFLAVMSVDRYLVVLATVRSRHMPWRTYRGAKVASLCVWLGVTVL
VLPFFSFAGVYSNELQVPSCGLSFPWPERVWFKASRVYTLVLGFVLPVCTICVLYTDLL
RRLRAVRLRSGAKALGKARRKVTVLVLVLAVCLLCWTFPHLASVVALTTDLPTPLVI
SMSYVITSLSYANSCLNPFLYAFLDDNFRKNFRSILRCAAARGRTPPSLGPQDESCTTA
SSSLAKDTSS

(SEQ ID No: 56)

L. Nucleotide sequence of the hGPR8- Enhanced Receptor

ATGCAGGCCGCTGGGCACCCAGAGCCCCTTGACAGCAGGGGCTCCTTCTCCCTCCCCAC
GATGGGTGCCAACGTCTCTCAGGACAATGGCACTGGCCACAATGCCACCTTCTCCGAGC
CACTGCCGTTCTCTATGTGCTCCTGCCCGCGTGTA TCTCCGGGATCTGTGCTGTGGGG
CTGACTGGCAACACGGCCGTCATCCTTGTAATCCTAAGGGCGCCCAAGATGAAGACGGT
GACCAACGTGTTTCATCCTGAACCTGGCCGTCGCCGACGGGCTCTTCACGCTGGTACTGC
CCGTCAACATCGCGGAGCACCTGCTGCAGTACTGGCCCTTCGGGGAGCTGCTCTGCAAG
CTGGTGCTGGCCGTCGACCACTACAACATCTTCTCCAGCATCTACTTCCTAGCCGTGAT
GAGCGTGGAACGATACCTGGTGGTGCTGGCCACCGTGAGGTCCCGCCACATGCCCTGGC
GCACCTACCGGGGGGCGAAGGTCGCCAGCCTGTGTGTCTGGCTGGGCGTCACGGTCCTG
GTTCTGCCCTTCTTCTCTTTTCGCTGGCGTCTACAGCAACGAGCTGCAGGTCCCAAGCTG
TGGGCTGAGCTTCCCGTGCGCCGAGCGGGTCTGGTTCAAGGCCAGCCGTGTCTACACTT
TGGTCCTGGGCTTCGTGCTGCCCCTGTGTCACCATCTGTGTGCTCTACACAGACCTCCTG
CGCAGGCTGCGGGCCGTGCGGCTCCGCTCTGGAGCCAAGGCTCTAGGCAAGGCCAGGCG
GAAGGTGACCGTCTTGGTCCTCGTTCGTGCTGGCCGTGTGCCTCCTCTGCTGGACGCCCT
TCCACCTGGCCTCTGTCTGCTGGCCCTGACCACGGACCTGCCCCAGACCCCACTGGTCATC
AGTATGTCCTACGTCATCACCAGCCTCAGCTACGCCAACTCGTGCCTGAACCCCTTCTCT
CTACGCCTTTCTAGATGACAACTTCCGGAAGAACTTCCGCAGCATATTGCGGTGCGCGG
CCGCACGGGGACGCACCCCAACAGCCTGGGTCCCCAAGATGAGTCCTGCACCACCGCC
AGCTCCTCCCTGGCCAAGGACACTTCATCGTGA

(SEQ ID No: 57)

FIGS. 5M – 5N

M. Amino Acid sequence of the hGPR22-Enhanced Receptor

MCFSPILEINMQSESNIIVRDDIDDINTNMYQPLSYPLSFQVSLTGFLMLEIVLGLGSN
 LTVLVLYCMKSNLINSVSNIIITMNLHVLDVVICVGCIPLTIVILLLSLESNTALICCFH
 EACVSFASVSTAINVFAITLDRYDISVKPANRILTMGRAVLMISIWIFSFFSFLIPFI
 EVNFFSLQSGNTWENKTLLCVSTNEYYTELGMYHLLVQIPIFFFTVVVMLITYTKILQ
 ALNIRIGTRFSTGQKKKARKKKTISLTQHEATDMSQSSGGRNVVFGVRTSVSVIIALR
 RAVKRRHRERRERQKRVFRMSLLIIISTFLLCWTPISVLNNTTILCLGPSDLLVKLRCLFLV
 MAYGTTIFHPLLYAFTRQKFQKVLKSKMKKRVVCAAARGRTPPSLGPQDESCTTASSSL
 AKDTSS

(SEQ ID No: 58)

N. Nucleotide sequence of the hGPR22-Enhanced Receptor

ATGTGTTTTTCTCCaTTCTGGAAATCAACATGCAGTCTGAATCTAACATTACAGTGCG
 AGATGACATTGATGACATCAACACCAATATGTACCAACCACTATCATATCCGTTAAGCT
 TTCAAGTGTCTCTCACCGGATTTCTTATGTTAGAAATTGTGTTGGGACTTGGCAGCAAC
 CTCACTGTATTGGTACTTTACTGCATGAAATCCAACCTAATCAACTCTGTCTAGTAACAT
 TATTACAATGAATCTTCATGTACTTGATGTAATAATTTGTGTGGGATGTATTCCTCTAA
 CTATAGTTATCCTTCTGCTTTCACTGGAGAGTAACACTGCTCTCATTTGCTGTTTCCAT
 GAGGCTTGTGTATCTTTTGCAAGTGTCTCAACAGCAATCAACGTTTTTGCTATCACTTT
 GGACAGATATGACATCTCTGTAAACCTGCAAACCGAATTCTGACAATGGGCAGAGCTG
 TAATGTTAATGATATCCATTGGATTTTTTCTTTTTTCTCTTTCCTGATTCCTTTTATT
 GAGGTAAATTTTTTTCAGTCTTCAAAGTGGAAATACCTGGGAAAACAAGACACTTTTATG
 TGTCAGTACAAATGAATACTACTGAACTGGGAATGTATTATCACCTGTAGTACAGA
 TCCCAATATTCTTTTTCACTGTTGTAGTAATGTTAATCACATACACCAAAATACTTCAG
 GCTCTTAATATTCTGAATAGGCACAAGATTTTCAACAGGGCAGAAGAAGAAAGCAAGAAA
 GAAAAAGACAATTTCTCTAACCACACAACATGAGGCTACAGACATGTCACAAAGCAGTG
 GTGGGAGAAATGTAGTCTTTGGTGTAAAGAACTTCAGTTTCTGTAATAATTGCCCTCCGG
 CGAGCTGTGAAACGACACCGTGAACGACGAGAAAGACAAAAGAGAGTCTTCAGGATGTC
 TTTATTGATTATTTCTACATTTCTTCTCTGCTGGACACCAATTTCTGTTTTAAATACCA
 CCATTTTATGTTTAGGCCCAAGTGACCTTTTAGTAAATTAAGATTGTGTTTTTTAGTC
 ATGGCTTATGGAACAACTATATTTACCCCTCTATTATATGCATTCACTAGACAAAATT
 TCAAAAGGTCTTGAAAAGTAAATGAAAAAGCGAGTTGTTTGTGCGCCGCACGGGGAC
 GCACCCACCCAGCCTGGGTCCCCAAGATGAGTCCTGCACCACCGCCAGCTCCTCCCTG
 GCCAAGGACACTTCATCGTGA

(SEQ ID No: 59)

FIGS. 6A – 6C

A. Amino acid sequence of the β_2 AR-V2R chimera

MGQPGNGSAFLAPNRSHAPDHDVTQQRDEVWVVGMGIVMSLIVLAIVFGNVLVITAI
 AKFERLQTVTNYFITSLACADLVMGLAVVPFGAAHILMKMWTFGNFWCEFWTSIDVLC
 VTASIELCVIAVDRYFAITSPFKYQSLTKNKARVILMVWIVSGLTSFLPIQMHWYRAT
 HQEAINCYANETCCDFFTQAYALASSIVSFYVPLVIMVFVYSRVFQEAKRQLQKIDKSE
 GRFHVQNLSQVEQDGRGTGHGLRRSSKFCLEHKAALKTLGIIMGTFTLCWLPFFIVNIVHV
 IQDNLIRKEVYILLNWIGYVNSGFNPLIYCRSPDFRIAFQELLCARGRTPPSLGPQDESCTT
 ASSSLAKDTSS

(Seq. ID No. 60)

B. Amino acid sequence of the MOR-V2R chimera

MDSSTGPGNTSDCSDPLAQASCSPAGSWLNLSHVDGNQSDPCGLNRTGLGGNDSLCP
 QTGSPSMVTAITIMALYSISVCVVGLFGNFLVMYVIVRYTKMKTATNIYIFNLALADALAT
 STLPFQSVNYLMGTWPFGTILCKIVISIDYYNMFTSIFTLCTMSVDRYIAVCHPVKALDFR
 TPRNAKIVNVCNWILSSAIGLPVMFMATTKYRQGSIDCTLTFSHPTWYWENLLKICVFIF
 AFIMPILIITVCYGLMILRLKSVRMLSGSKEKDRNLRRITRMVLVVAVFIVCWTPHIYVI
 IKALITIPETTFQTVSWHFCIALGYTNSCLNPVLYAFLDENFKRCFREFCAAARGRTPPSL
 GPQDESCTTASSSLAKDTSS

(Seq. ID No. 61)

C. Amino acid sequence of the D1AR-V2R chimera

MAPNTSTMDEAGLPAERDFSFRILTACFLSLLILSTLLGNTLVCAAVIRFRHLRSKVTNFF
 VISLAVSDLLVAVLVMPWKAVAEIAGFWPFGSFCNIWVAFDIMCSTASILNLCVISVDYR
 WAISSPFQYERKMTPKAAFILISVAWTLVLSIFIPVQLSWHKAKPTWPLDGNFTSLEDTE
 DDNCDTRLRSRTYAISSSLISFYIPVAIMIVTYTTSIYRIAQKQIRRIALERA AVHAKNCQTT
 AGNGNPVECAQSESSFKMSFKRETKVLKTLVIMGVFVCCWLPFFISNCMVFPFCGSEET
 QPFCIDSITFDVFVWFGWANSSLNPIIYAFNADFQKAFSTLLGCYRLCAAARGRTPPSLGP
 QDESCTTASSSLAKDTSS

(Seq. ID No. 62)

FIGS. 6D – 6F

D. Amino acid sequence of the 5HT1AR-V2R chimera

MDVLSPGQGNNNTTSPAPFETGGNTTGISDVTVSQVITSLLLGLTIFCAVLGNACVVAA
 IALERSLQNVANYLIGSLAVTDLMVSVLVLPMAALYQVLNKWTLGQVTCDLFIALDVL
 CCTSSILHLCAALDRYWAITDPIDYVNKRTPRRAAALISLTWLIGFLISIPMLGWRTPED
 RSDPDACTISKDHGYTIYSTFGAFYIPLLLMLVLYGRIFRAARFRIRKTVKKVEKTGADT
 RHGASPAPQPKKSVNGESGSRNWRLGVESKAGGALCANGAVRQGDDGAALEVIEVHR
 VGNSKEHLPLPSEAGPTPCAPASFERKNERNAEAKRKMALARERKTVKTLGIIMGTFILC
 WLPFFIVALVLPFCESSCHMPTLLGAIINWLGYSNLLNPVIYAYFNKDFQNAFKKIICKN
 FCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(Seq. ID No. 63)

E. Amino acid sequence of the β 3AR-V2R chimera

MAPWPHENSSLAPWPDLPNTANTSGLPVPWEAALAGALLALAVLATVGGNLLV
 IVAIAWTPRLQTMNVFVTSLAAADLVMGLLVPPAATLALTGHWPLGATGCELWTSV
 DVLCVTASIELCALAVDRYLAVTNPLRYGALVTKRCARTAVVLVWVVSAAVSFAPIM
 SQWWRVGADAEAQRCHSNPRCCAFASNMPYVLLSSVSFYLPLLVMLFVYARVFVVA
 TRQLRLLRGELGRFPPEESPPAPSRSLAPAPVGTAPPEGVPACGRRPARLLPLREHRALC
 TLGLIMGTFTLCWLPFFLANVLRALGGPSLVPGAFLALNWLGYANSFNPFIYCRSPDF
 RSAFRLLCRCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(Seq. ID No. 64)

F. Amino acid sequence of the Edg1R-V2R chimera

MGPTSVPLVKAHRSSVSDYVNYDIIVRHNYTGKLNISADKENSILTSVVFILICCFIILE
 NIFVLLTIWKTCKFHRPMYYFIGNLALSDDLAVGTANLLLSGATTYKLTTPAQWFLRE
 GSMFVALSASVFSLLAIAIERYITMLKMKLHNGSNFRLFLISACWVISLILGGLPIMGW
 NCISALSSCSTVLPYHKHYILFCTTVFTLLLSIVILYCRIYSLVRTRSRLTFRKNISKAS
 RSSEKSLALLKTVIIVLSVFIACWAPLFILLLLDVGCKVKTCDFRAEYFLVLAVLNSGT
 NPIIYTLTNKEMRRAFIRIMSCCKCAAARGRTPPSLGPQDESCTTASSSLAKDTSS

(Seq. ID No. 65)